BROOKHAVEN NATIONAL LABORATORY

Building 911C
P.O. Box 5000
Upton, NY 11973-5000
Phone 631 344-4531
Fax 631 344-5954
hershcovitch@bnl.gov

Memo

DATE: *November 22, 2002*

TO: RHIC E-Coolers

FROM: *Ady Hershcovitch*

SUBJECT: **Minutes of the November 22, 2002 Meeting**

Present: Ilan Ben-Zvi, Xiang Yun Chang, Gregory Citver, Ady Hershcovitch, Jorg Kewisch, William MacKay, Christoph Montag, Stephen Peggs, Thomas Roser, Triveni Srinivasan-Rao, Dejan Trbojevic, Dong Wang, Qiang Zhao.

Topics discussed: Simulation & Calculations, 939 Setup.

Simulation & Calculations: Jorg opened the meeting by reporting on calculations performed with PARMELA. These calculations are aimed at obtaining a start-to-end simulation of the electron "ring." The results are very good. At the entrance to the solenoid, the RMS energy spread was about or less than 10^{-4}. The bunch length was 18 centimeters. Dejan commented that the results are "picture perfect," and "almost too good to be true." Dejan also remarked that 18 centimeters seems too long, to which Ilan replied that it is not long compared to the RHIC bunch length. The only remaining problem is the transverse phase space in the second alpha loop, which is too large. The beam entering the last dipole before energy recovery seems to have the "wrong" energy. After a short discussion, the consensus seems to be that adjusting the phase of the compressor cavity can solve the problem. Finally, Jorg indicated that he needs a faster computer. Replacing his slow computer can lead to faster progress.

939 Setup: in answer to Thomas' question, Triveni reported on the status cathode development. The deposition chamber was delivered from Kurt Lasker. Plans are to bake the chamber over this weekend. The chemicals were also delivered. Plans are to start testing next month. The laser had to be sent back to Switzerland, its return is imminent. Regarding the superconducting gun, many delays occurred. At this point electrical engineering help is needed. RF studies at room temperature are almost completed. Work needed to be performed on a milling machine at AES has delayed some deliveries. AES has a new milling machine that is currently being debugged.

Ilan reported on progress in the development of the warm electron gun. It is designed to go down to a pressure of 10^{-10} Torr. Boeing did the only comparable gun development. It operated at 10^{-8} Torr and had a cathode lifetime of a few hours. At 10^{-10} Torr orders of magnitude increase in cathode lifetime is expected. LANL and AES perform most of the R&D with input from BNL especially concerning vacuum issues.